

V. *Description of a new Strepsipterous Insect.* By Robert Templeton, Esq., R. A.

[Read 5th March, 1838.]

HAVING, whilst at Rio Janeiro, caught a *Sphex* in whose abdomen was inserted the full grown pupa of a *Xenos*, I placed it in spirits with the intention of examining it on my arrival at Colombo. Many things combined to make me regard this little treasure with peculiar interest. I heretofore had only met with an *Elenchus* found in Ireland, and with that which I discovered in the island of Mauritius, described in a former volume of these Transactions, and its minute size threw a veil over many interesting particulars, but I had now hopes of clearing these up to my satisfaction, from the large dimensions, comparatively speaking, of the present specimen; and as the genus was as yet meagre in species, though its congeners, thanks to British industry, were now including very respectable numbers, I was pleased at the prospect of adding another. Besides, Latreille had grounded his change of the name of the order on the details of this very genus, and most possibly some peculiarity of form, some development which we had not found to pertain to *Stylops* or *Elenchus*, might have appeared to sanction it, or at least account for the difference of opinion. I need not say how much I was gratified in perceiving that there was no grounds whatever for the alleged anterior origin of the elytra, even with the latitude which Kirby himself admitted; and in fact, instead of even an approximation to the assigned position, that a wide membranous space intervened, cutting off all immediate connection with the anterior coxæ, so that their origin as elytra must be considered perfectly normal: one thing I was struck with in my contemplation of these little rudimentary bodies, how singularly happy was Kirby's name of the order, as expressive of the appearance they present in this genus, the twisting being in fact their most peculiar character. They are not so broadly spatulate, in proportion to the stipes, as in our English genera, but each appears like a short ribbon, the one end of which was twisted over at right angles to the other. I remember when I first saw them in *Elenchus*, being puzzled to conceive how the twisting could have been selected by Kirby as a dominant quality sufficient to fix the name of the order, but here it is remarkably apparent and expressive; and as every one must be satisfied that the prior name was on the continent too hastily re-

jected, its restoration may be confidently expected with the first good monograph which appears from our foreign fellow-labourers in this branch of scientific research.

I found nothing among the oral appendages which bore the slightest resemblance to a lip, but near the rostrated part beneath is obviously the opening into the pharynx; when the *Xenos* lay upon its back I saw plainly down into it, parts of the interior rising into view as I elevated the platform of the microscope; the edges were corrugated, as if the orifice was capable of considerable change of size and form, and resembled much the mouth of the polypi. I was much struck with the thinness and lancet-like appearance of the mandibles, and with their peculiar articulation, with the lateral plate descending from the ocular pedicle. The whole inferior surface of the head, from the rostrum to the fore legs, was found to be membranous, and to be thrown into folds in various motions of the head.

An error seems to have arisen and been repeated by every one who regarded these little creatures through Mr. Bauer's eyes and a compound microscope;—it consists in supposed vesicles cushioning the tarsus, or a “vesicular membrane capable of being inflated,” and the quaint appendix of Kirby, of “the fact of their inflatibility not being ascertained,” appears likely to rank some time longer among desiderata. The fact is, all the joints, but especially the terminal, are lobed; and when seen from above, a membrane is observed to extend itself some way in advance of the lobated extremities, and being thin and transparent, suggested, when the outlines became mellowed in the field of a compound microscope, the idea of a vesicle; but when viewed laterally, the truth becomes at once apparent; besides being lobed, the joints are arched transversely; and from within the concavity, and I do believe from an articulation, an appendage of very similar form, not however lobed, passes in advance of the joints; it is very thin, its edges carrying strong spinelike hairs, which also cross the hollow inferior surface in rows, and it is on these the animal is sustained in the quiescent state.

There appeared to me no sufficient reason for the division of the antitrunk into distinct collars or rings, which I think I remember to have seen in sketches from dead specimens; the plates are not continuous round the trunk, but are separate, and united by a tough leathery-looking membrane, in many places thrown into folds, which are not permanent, but made to disappear on moving the head or adjoining plates.

When I proceeded to the examination of the pupa, I disen-

gaged with a little force the case from between the abdominal rings, a very soft but intimate union having subsisted between it and the sheath in which it was placed; when removed, it was about  $2\frac{1}{2}$  tenths of an inch in length, almost exactly cylindrical, the inserted extremity rounded, flocculent, and pale yellowish, that exterior, reddish brown, and slightly corrugated, as if from desiccation; when torn asunder, I found the little creature's head occupying this portion, the abdomen having been inserted in the sphex, and the whole body enveloped in a fine transparent membrane, which was closely attached to the thorax and abdomen, and sent off loose processes to give covering to each of the legs, antennæ, palpi and trophi. This membrane exteriorly was rough, as if papillated, but did not seem to lie in immediate contact with the case; and I am led to believe that it contained an albuminous fluid, in which the animal was swimming, for on opening it a slight coagulation ensued when the contents came in contact with the weak spirits. The animal was now exposed, and seemed in excellent condition, and from its appearance gave me no reason to infer that any difference could exist between it in its then state and the perfect insect, with the exception of the undeveloped state of the wings. As you will, from my sketches, at once observe, it has little specifically in common with *Xenos Peckii*, which is the only one with which I can here compare it, and must be still less closely allied to *Xenos Rossii*, if what Dr. Leach states in the Zoological Miscellany be correct, since the abdomen in my insect is not pedunculate, though sensibly lessened in diameter at the base, and most assuredly there are not five joints to the tarsus. I have therefore little hesitation in believing that I have hit upon an undescribed species. In the hope that it may prove so, I take the opportunity of testifying my regard for my learned and indefatigable friend, the Secretary to the Entomological Society, and of ushering into the world my little *Xenos* with a name which will ensure it consideration and respect. I have named it

#### XENOS WESTWOODII.

The head is small, and carries anteriorly two cupped tubercles (C,o), separated by a small interval, from whence arise the antennæ, which are rather stout, in proportion to their other dimension. The first joint (C,p) is short, subcylindric, a little contracted immediately beyond the base, but dilating towards its articulation with the succeeding joint, beyond which it extends internally, so that when seen from beneath it presents a somewhat triangular appearance. The second joint (q) is very minute,

a little longer than broad, and constricted in the middle, beneath appearing as a little cup, from the concavity of which arises the third joint. These two joints are thickly covered with short rigid hairs, in this particular differing essentially from the two succeeding (*rs*), whose entire surface is tessellated, in tolerably regular transverse rows, the tessera (*Ct*<sup>1</sup> and *Ct*) preserving nearly the same size and form, about 7-12 in each cross row, the intervals filled with minute, scarcely elevated, rigid hairs. In form, the third joint (*r*) is flat, elongate, dilated in the middle, rounded at the apex, and at the base turned suddenly off at right angles, forming a little cup, the convexity of which rests in the hollow of the second joint, and the concavity supports the fourth joint (*s*), which lies behind and above the prolonged part of the third joint, exceeding it in length about one-fourth part, and, like it, dilated in the middle, and a little at the base posteriorly.

The eyes (*Ba*) are supported on short thick tubercles, are hemispheric and compound, the facets, ten or twelve, in the longest row, subpentagonal, amount to about seventy, certainly not less than that number, and are separated by narrow spaces, filled with dense, minute, black ciliæ.

Beneath the head presents anteriorly a rounded orifice (*b*) leading into the pharynx, the margin slightly corrugated, and on each side of it lie the inner edges of the elongate, narrow, slightly arched mandibles (*e*), which arise on each side beneath the irregular elevated edge of a horny plate (*d*), that stretches inwards from the root of the ocular peduncle; they pass inwards and forwards, and end with an extremely sharp incurved apex. Immediately behind the mandible, and from beneath the same plate, which curves a little inwards, in forming the articulating surface, is found the root of the triarticulate palpus (*f*); the first joint minute, the second large, tumid, and a little curved backwards; the apical small, cylindric, and densely covered with minute hairs.

The adjoining part of the neck (*g*) is membranous, and thrown into folds, in the motions of the head. Posterior to this part, we find the antipectus (*h*), a transverse horny plate, elevated in the middle, from behind which originate the coxa (*i*) of the forelegs. This plate, like all the succeeding, does not form a ring, encircling the trunk, but terminates at the side, where it has merely a membranous connection, with the posterior division of the prothorax, an arched plate seen from above immediately behind the ocular peduncles. Between the antipectus and the medipectus (*n*<sup>1</sup>), to which on each side the coxa (*k*) of the second pair of legs is

attached, the body (*l*) is again membranous, and transversely plicated, preserving this character externally until it meets with the mesothorax, the narrow dorsal plate next in succession, and a cordiform one (*m*) placed obliquely, the apex resting in a hollow of the anterior margin of the medipectus, and the rounded anterior lobe concealing and articulated with the base of the elytron (*n*): a small interval exists between the base of the elytron and the mesothorax, which is quite membranous and plicated. The postpectus is a single shield, with a narrow dark line dividing it posteriorly into two parts.

The metathorax is as enormously developed as the prothorax and mesothorax are contracted in dimensions; it is divided into two parts by a narrow transverse plate, the anterior subpentagonal, and subdivided dorsally into four smaller parts, of which that in the middle line and farthest forward is the smallest, and five-sided; that resting against the narrow transverse plate, triangular; the lateral trapeziform, and beneath the outer angle of them the wings arise. The posterior of the two parts of the metathorax is triangular, the base in contact with the narrow transverse plate; the apex rounded, and extending over the dorsal parts of the first four abdominal rings: similarly formed plates cover the lateral portions of the first two rings.

The legs are not cylindric, varying very much in appearance according to the position from whence they are viewed; the fore-legs shortest and most slender; the coxa is short, tumid, and curved; the femur rather longer and subtriangular; the tibia elongate, clavate (*u*); the tarsus (*v<sup>i</sup>*, *v<sup>ii</sup>*, *v<sup>iii</sup>*, *v<sup>iv</sup>*) composed of four joints, of which the first (*v<sup>i</sup>*) is longest, the remainder diminishing successively in size, all bilobed, and transversely curved, sending off from the concavity a thin transparent appendage, resembling the joint itself, but unlobed, the inferior surface having rows of strong hairs, which also crown the margins. There are no vesicles.

The elytron arises, as we have shown, from the anterior lobe of a cordiform plate, which joins the medipectus, and which is elevated and rounded to admit of the articulation. The base of the elytron is a little bulb or ball, a neck very apparent anteriorly joining it to the thin elongate ribbon-like part, which curved backwards and upwards on itself, forms the exposed part of the elytron viewed from above; the anterior edge is thickened.

The abdomen is soft, sessile, incrassate, of nine segments,

whose distinction is in some places very obscure, at the sides tolerably strongly marked: the last segment is excavated, with two segments of an anal apparatus protruding, but not capable of greater exertion than is represented in the drawing.

Not being able in this place (Colombo in Ceylon) to determine whether the *Sphex* in which the *Xenos* was detected be previously described or not, I subjoin the following short description and provisional specific name.

SPHEX AUROCAPILLUS.

Body black, covered with golden hair, especially at the margins of the thoracic plates and of the forehead; antennæ black; wings pale brown; the posterior margin of each wing with a broad dark band; legs ferruginous; abdomen rufous, with the apex darkish.

At Rio Janeiro, the fourth segment distorted by the insertion of the pupa of *Xenos Westwoodii*.

---

Plate IV. fig. A. *Xenos Westwoodii*.

B. Portion of the head and anterior segments of the thorax beneath.

C. Antenna. *C t* and *C t*<sup>1</sup>. Portions of ditto more highly magnified.

D. Foreleg from above. *viii* and *iv* two of the tarsal joints.

E. *Sphex aurocapillus*, and details. *E b*. Spatulate hairs.

---